Guglielmo Scovazzi
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Personal Information

Citizenship: Italian

Career

October 2004 – Present **Sandia National Laboratories**
Computational Shock- and Multi-physics Department (org. 1431)
Computational Scientist (LTE)

Education

Sept. 2002 – Sept. 2004 **University of Texas at Austin**
Institute for Computational Engineering and Sciences
Research visitor

April 2001 – Sept. 2004 **Stanford University, Stanford, California**
Mechanics and Computation Division
Ph.D. in Mechanical Engineering
Dissertation title: “Multiscale methods in science and engineering'”
Adviser: Professor T.J.R. Hughes.

Sept. 1999 – March 2001 **Stanford University, Stanford, California**
M.S. in Mechanical Engineering
GPA: 3.96
Concentration in flow physics, turbulence, signal analysis, wavelets

Sept. 1999 – March 2001 **Center for Turbulence Research (Stanford/NASA AMES)**
Research assistant

Sept.1998 – July 1999 **Scuola di Applicazione d’Arma, Torino (Turin), Italy**
Military Service (Italian Army post-graduate academy)
Appointed to the Agency for Quality Control and Education Programs
(supervisors Col. Giampaolo Bartolini and Col. Giovanni M. Pieri).

Oct. 1992 – Feb. 1998 **Politecnico di Torino, Turin, Italy**
B.S./M.S. in Aerospace Engineering
Final Grade: "110/110, Magna cum Laude" (Excellence Award)
GPA ranking: top 1%.

Skills

Analytical skills
Strength and Concentration: Mathematical modeling, with emphasis on multiscale/multilevel analysis applied to computational fluid dynamics and computational mechanics.
Strong Background: Multilevel signal analysis, wavelets, optimal/robust control and estimation.
Good Knowledge: Applied probability and stochastic processes, stochastic differential equations.

Computational skills
Systems: UNIX/Linux Systems, Silicon Graphics workstations and supercomputing platforms (512+ processor SGI Origin 2000 at NASA AMES Research Center).
Programming Languages: C++, FORTRAN 95/90/77, Matlab, Mathematica, Maple.

Publications

Thomas J. R. Hughes, Leopoldo P. Franca, Guglielmo Scovazzi, "Multiscale and stabilized methods", in *Encyclopedia of Computational Mechanics*, eds. E. Stein, R. De Borst, T.J.R. Hughes, Wiley, 2004.

Guglielmo Scovazzi, Mark A. Christon, Thomas J. R. Hughes, and John N. Shadid, "Stabilized shock hydrodynamics: I. A Lagrangian method", accepted in *Computer Methods in Applied Mechanics and Engineering*, 2006.

Guglielmo Scovazzi, "Stabilized shock hydrodynamics: II. Design and physical interpretation of the SUPG operator for Lagrangian computations", accepted in *Computer Methods in Applied Mechanics and Engineering*, 2006.

Guglielmo Scovazzi, "A discourse on Galilean invariance, SUPG stabilization, and the variational multiscale framework", accepted in *Computer Methods in Applied Mechanics and Engineering*, 2006.

Thomas J. R. Hughes, Guglielmo Scovazzi, Pavel B. Bochev, Annalisa Buffa, "A multiscale discontinuous Galerkin method with the computational structure of a continuous Galerkin method", *Computer Methods in Applied Mechanics and Engineering*, Volume 195, Issues 19-22, April 2006, pp. 2761-2787.

Pavel B. Bochev, Thomas J. R. Hughes, Guglielmo Scovazzi, "A multiscale discontinuous Galerkin method ", in *Lecture Notes in Computer Science,* Springer, 2005.

Thomas J. R. Hughes, Victor M. Calo, G. Scovazzi, "Variational and multiscale methods in turbulence", in *Proceedings of the XXI International Congress of Theoretical and Applied Mechanics* (IUTAM), eds. W. Gutkowski and T. A. Kowalewski, Kluwer, 2004.

G. Scovazzi, "Multiscale methods in science and engineering", Ph.D. thesis, Mechanical Engineering Department, Stanford University, August 2004.

Conference Presentations

Author or coauthor in more than 25 presentations at International Meetings and Conferences in the past 6 years, among which:

- APS-Division of Fluid Mechanics Meetings, Washington D.C., 2000.
- APS-Division of Fluid Mechanics Meetings, San Diego (CA), 2001.
- World Congress on Computational Mechanics, Vienna (Austria), 2003.
- 7th U.S. National Congress on Computational Mechanics, Albuquerque (NM), 2003.
- 8th U.S. National Congress on Computational Mechanics, Austin (TX), 2005.

Peer review expertise

Guglielmo Scovazzi is currently a reviewer for:

- Computer Methods in Applied Mechanics and Engineering (impact factor 1.263)
- SIAM Journal on Numerical Analysis (impact factor 1.374)
- International Journal of Numerical Methods in Fluids (impact factor 0.723)
- SIAM Journal on Applied Mathematics
- Encyclopedia of Computational Mechanics, eds. E. Stein, R. De Borst, T. J. R. Hughes, Wiley.

Language skills

- **Italian:** native speaker
- **French:** fluent, **Diplôme de L'Alliance Française** (advanced diploma valid in 80+ French-Speaking Countries worldwide).
- **Spanish:** working knowledge, very good oral comprehension.

Extracurricular activities

May 1985 **Solo Vocalist** in **"The Magic Flute"** by W.A. Mozart at the **Teatro Regio di Torino** (Turin Opera House).

June 1986 **Solo Vocalist** in **"The Golden Vanity"** by B. Britten at the **Auditorium R.A.I. di Torino,** (Turin, Italian National Broadcasting Network Concert Hall).

May 1987 **Solo Vocalist** in **"Wozzeck"** by A. Berg at the **Auditorium R.A.I. di Torino**.

1985-1995 **Violin Practice**
Supervisor: C. Grasso (former solo violin of the *Opera di Roma* (Rome Opera House) Orchestra, *Auditorium RAI di Torino* Orchestra, *Teatro Regio di Torino* Orchestra).

Hobbies and sports

•Classical music.
•Sailing, swimming, skiing, mountain biking, basketball, waterpolo, hiking.